

REMARKS

In conjunction with the filing of the subject amendment, Applicant is submitting a Supplemental Information Disclosure Statement and Form PTO-1449 officially submitting an English language translation of Russian Patent No. 2077925 C1 to Krapukhin (hereinafter referred to as "the Krapukhin patent") for consideration by the Examiner. As described additionally below, the Krapukhin patent does not disclose, teach, or otherwise suggest the inventive concepts claimed in the pending application.

After entry of the subject amendment, claims 1-65 and 76-84 remain in the application with claims 1, 57, 76, and 83 being in independent form. More specifically, Applicant has amended claim 17 into independent form to accept the Examiner's indication of allowability of this claim. To this end, claim 17 has been amended to include the limitations of the base claim and intervening claims. Applicant has added claims 76-82, directed to a filter apparatus, to define a combination of the filter canister and the filter assembly. For the Examiner's convenience, new independent claim 76 is a combination of original claims 1, 34, and 42 with the focus being on the oval-shape of the inlet of the filter canister for imparting a vortex onto the fluid received into the filter canister. The patentability of new claims 76-82 is described below. Applicant has also added claims 83 and 84, directed to a filter assembly. For the Examiner's convenience, new independent claim 83 is a combination of original claims 1 and 30 with the focus being on the extension of the wave coils in an endless path through the at least one crest and the at least one trough and between the first and second ends of the filter element. The patentability of new claims 83 and 84 is described below. There is full support in the specification as originally filed for the amendment to claim 17 and for added claims 76-84. Accordingly, no new matter has been introduced.

Claims 1, 25-28, 30, 31, 34-36, 57, 59-62, 64 and 65 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Krapukhin (Russian Patent No. 2077925 C1). Claims 2-6, 9-15, and 58 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Krapukhin in view of Kannan (United States Patent No. 5,207,930). Claim 16 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Krapukhin in view of Kannan (as applied to claim 15), and further in view of Heermance (United States Patent No. 99,315). Claims 7, 8, 28, and 62 stand rejected under 35 U.S.C. § 103(a) as

being unpatentable over Krapukhin in view of Kannan (as applied to claim 6), and further in view of Lennartz (United States Patent No. 4,804,481).¹ Claim 42 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Krapukhin in view of Kannan (as applied to claim 34), and further in view of Fournier (United States Patent No. 3,750,885). Finally, claims 43-46 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Krapukhin in view of Kannan (as applied to claim 34), and further in view of Moorehead et al. (United States Patent No. 4,678,564). The Applicant respectfully traverses these rejections based, in part, on the Applicant's understanding of the Krapukhin patent in view of the English language translation.

In each of the independent claims defining the subject invention, specifically claims 1, 57, 76, and 83, the Applicant positively recites that each of the wave coils within the plurality include at least one crest and at least one trough. These independent claims further recite that at least one crest of one wave coil engages at least one trough of an adjacent wave coil to define at least one filtration aperture between each crest and each trough of adjacent wave coils. Thus, it is the specific contour, i.e., the crests and troughs, of one wave coil and an adjacent wave coil that define the filtration aperture and this filtration aperture is defined between the first and second ends of the filter element.

Under 35 U.S.C. § 102, it is well settled that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). If even a single limitation of the rejected claim is not found in the prior art reference, then the rejection under 35 U.S.C. § 102 of the claim is improper and must be withdrawn.

Contrary to the Examiner's contentions in his Office Action, the Krapukhin patent does not disclose, teach, or suggest an arrangement as claimed in the subject

¹ In the first full paragraph on page 7 of his Office Action, the Examiner does not specifically set forth which claims stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Krapukhin in view of Kannan (as applied to claim 6), and further in view of Lennartz. However, due to the arguments by the Examiner that follow this general rejection, the Applicant assumes that claims 7, 8, 28, and 62 are the claims that stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Krapukhin in view of Kannan (as applied to claim 6), and further in view of Lennartz. Furthermore, since the Examiner is now rejecting claim 28 under Section 103(a) and in doing so specifically acknowledges that Krapukhin does not specify coils that include a plurality of ridges, the Applicant assumes that the previous rejection of claim 28 under § 102(b) (*see page 2 of the Office Action*) is no longer applicable.

invention. That is, the Krapukhin patent does not disclose, teach, or suggest at least one filtration aperture that is defined by and between the crests and troughs of one wave coil and an adjacent wave coil. Instead, due to the benefit of the English language translation of the Krapukhin patent, the Applicant asserts that it is apparent that the filtration aperture in the Krapukhin patent is defined by a cylindrical helix with sinusoidal windings (refer specifically to the Title for the Krapukhin patent recited in the Derwent Summary Page from West)...**and not by** the crests and troughs of one wave coil and an adjacent wave coil. More specifically, the Applicant contends that the filter element disclosed in the Krapukhin patent actually includes two distinct components, a cylindrical helix and sinusoidal windings (see also the text in the Derwent Summary Page reading “[t]he loops of windings are made by a sinusoid folded along a helix.”). In other words, the Applicant contends that the Krapukhin patent, in a sense, requires two strand-like components, with one strand-like component over-wound over the other and that this over-winding is what is required in Krapukhin’s filter element to define, i.e. to establish, the filtration apertures. Without this over-winding, no filtration apertures can be established in the Krapukhin patent.

As evidence supporting the Applicant’s contention, the Applicant notes that Figure 1 of the Krapukhin patent does not actually disclose any filtration apertures whatsoever. Also, the Applicant respectfully submits that it is possible that the Examiner has misconstrued Figure 2 of the Krapukhin patent as a side view. In fact, nothing in the English language translation of the Krapukhin patent suggests that Figure 2 is actually a side view. Also, even treating Figure 2 as a side view, it is not possible to construe the distinct elements in Figure 2 as one element, i.e., a plurality of wave coils that extend “continuously in an endless path”. Instead, Figure 2 clearly discloses two separate elements. With respect to Figure 3 of the Krapukhin patent, the Applicant contends that this Figure is an end view (refer to Paragraph 11 of the English language translation which reads “...end face of the filtration partition...”). In this Figure, two lines which are unique geometric shapes are disclosed with one shape inside the other shape. On the other hand, if the Examiner was to refer to an end view of the plurality of wave coils of the subject invention when they are arranged axially (which is a requirement in all three independent claims), he would only see a single geometric shape, not two distinct

geometric shapes. Furthermore, Figure 4 of Author's Certificate SU 1368003 A1 (attached as Exhibit A), which is also attributed to Krapukhin and is specifically referenced in the Krapukhin patent, clearly discloses Krapukhin's filter element having the two distinct components referred to by the Applicant in his contention. These two distinct components define Krapukhin's filtration apertures. As compared to the filter of the subject invention, the filtration apertures of Krapukhin cannot be seen in side view and can only be seen in end view. On the other hand, the filtration aperture or apertures defined in the subject invention are present in side view.

As further evidence of the Applicant's contention, the Applicant cites the following excerpts from the English language translation:

Paragraph 2: "...consists of a framework and a filtration partition executed in the form of a cylindrical spiral, **the coils of which are executed in the form of sinusoids turned into the plane of the screw**" (*emphasis added*); and

Paragraph 13: "The filtration partition is implemented as a kind of screw spiral. The coils of this spiral are configured next to each other. The spiral coils are executed as sinusoids, constrained along the screw lines.

Referring again to the Derwent Summary Page and also to the English language translation (particularly Paragraph 19), the filter element of the Krapukhin patent includes an elastic element (3). During filtering and regeneration, the associated pressures cause the elastic element to expand and contract, thereby modifying the filtration apertures. In other words, these pressures overcome the resistance of the elastic element (3). Therefore, the Applicant respectfully suggests that the elastic element (3) in the Krapukhin patent is rubber-like. To the contrary, the wave coils and filter element of the subject invention are preferably made of a metal and are, therefore, relatively inelastic compared to the elastic element (3) of the Krapukhin patent. In fact, in the subject invention, the pressures that are generated during the filtering and regeneration processes do not modify the filtration apertures because these pressures do not overcome the physical properties of the wave coils and filter element. Instead, it is the adjustment mechanism that is associated with the filter of the subject invention that actually permits modification of the filtration apertures.

Due to the reasoning set forth above and because the Krapukhin patent does not disclose each and every element of independent claims 1, 57, and 76, it is respectfully submitted that the § 102(b) rejections of independent claims 1 and 57 are overcome and that these claims are allowable. Furthermore, claims 2-56 and claims 58-65 depend directly or indirectly from claims 1 and 57, respectively, such that these claims are also allowable with respect to § 102(b).

Similarly, the Examiner's various § 103(a) rejections of the claims are improper. More specifically, the Applicant respectfully submits that the Examiner has not established a *prima facie* case of obviousness.² To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, upon combination, the prior art references must teach or suggest all the claim limitations. MPEP 2142. The teaching or suggestion to make the claim combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.³

The Applicant contends that the Examiner's *prima facie* case of obviousness is not established because, as required by the third criterion, even the combination of the Krapukhin patent with the Kannan, Heermance, Lennartz, Fournier, and Moorehead et al. references does not disclose, teach, or otherwise suggest all of the features of the subject invention as claimed in independent claims 1 and 57. Furthermore, any reliance on these references to supplement the Krapukhin patent does not provide the necessary teaching or suggestion of adjacent wave coils establishing at least one filtration aperture between their respective crests and troughs without the requirement of two distinct wire-like components in the filter.

The Applicant also contends that in his various § 103(a) rejections, the Examiner has not provided the requisite suggestion or motivation to combine reference teachings in accordance with the first criterion. Under this first criterion, the case *In re Sang Su Lee*,

² The legal concept of *prima facie* obviousness allocates who has the burden of going forward with production of evidence. The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness. MPEP 2142

which was decided by the United States Court of Appeals for the Federal Circuit (CAFC) on January 18, 2002⁴, clearly defines how suggestion and motivation are determined, and how the knowledge generally available to one skilled in the art is found.

In *In re Sang Su Lee*, the CAFC reviewed a decision from the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office. Both the Examiner and the Board agreed that Sang Su Lee's invention "would have been obvious to one of ordinary skill in the art since the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software," and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial." *Id.* at 1341. However, in this case, the CAFC made it abundantly clear that the Board's and the Examiner's conclusory statements did not adequately address the issue of motivation to modify a reference or motivation to combine references. The factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority. *Id.* at 1343. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." *W.L. Gore v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 330, 312-13 (Fed. Cir. 1983). The court in *In re Sang Su Lee* went on to state that the "common knowledge and common sense" on which the Board relied in rejecting Lee's application are not the specialized knowledge and expertise contemplated by the Administrative Procedure Act. Conclusory statements such as those here provided do not fulfill the agency's obligation. *In re Sang Su Lee*, 277 F.3d at 1342.

As one example, the Applicant specifically refers to the Examiner's § 103(a) rejections of claims 2 and 58. In this rejection, without providing objective evidence and in an overly conclusory manner, the Examiner contends that Kannan discloses an apparatus that is "analogous" to the Krapukhin apparatus and that it would have been obvious to modify the apparatus of Krapukhin to include the adjustment mechanism suggested by Kannan to facilitate cleaning of the filter by backwashing. First, it is

³ *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q. 2d 1438 (Fed. Cir. 1991).

⁴ 277 F.3d 1338 (Fed. Cir. 2002).

unlikely that the Examiner understands the apparatus of Krapukhin well enough to conclude that the apparatuses of Krapukhin and Kannan are “analogous”. Secondly, as described above, the apparatus of Krapukhin includes an elastic element (3) for filtering and for regeneration, i.e., backwashing. Therefore, the apparatus of Krapukhin does not need any adjustment mechanism whatsoever for backwashing. If this is the case, how is it possible to conclude that there is a motivation to combine the two references? In fact, it is reasonable to conclude that the Krapukhin patent actually teaches away from the Kannan patent because it does not require any adjustment mechanism whatsoever (due to the elasticity of the element).

In sum, the Examiner’s conclusory statements and citation of prior art references that actually teach away from each other and from the subject invention do not satisfy the requisite burden of suggestion and motivation or knowledge generally available to one skilled in the art. As such, the Examiner has not satisfied his *prima facie* case of obviousness in accordance with the first and third criteria set forth above and the various § 103(a) rejections are improper.

Relative to new independent claim 76, the Applicant specifically traverses the Examiner’s rejection of claim 42 under § 103(a) as being unpatentable over Krapukhin in view of Kannan (as applied to claim 34), and further in view of Fournier. As originally described above, claim 76 is a combination of original claims 1, 34, and 42 with the focus being on the oval-shape of the inlet of the filter canister for imparting a vortex onto the fluid received into the filter canister. In addition to the fact that the combination of the Krapukhin patent and Kannan and Fournier does not disclose, teach, or suggest the filtration aperture as discussed above, this combination of references *also does not* disclose, teach, or suggest the *oval-shaped inlet* of the filter canister claimed in new claim 76 (and in original dependent claim 42).

The general reference by the Examiner to Figure 1 of Fournier is insufficient. By this general reference, the Applicant assumes that the Examiner is referring to inlet port 14 of Fournier. Referring to Figures 1 and 5 of Fournier, the inlet port 14 is clearly strictly circular and not oval-shaped in any manner. As understood by those skilled in the art, oval is broadly recognized as something that is “elliptical”. Furthermore, column 4, lines 55-67 of Fournier reveals that no vortex is realized by the fluid as a result of an

oval-shaped inlet. Instead, in Fournier, after the fluid enters the chamber, it passes downwardly in the chamber and some particles may fall by mere gravity, i.e., not as the result of the establishment of a vortex, into a lower portion of the chamber.

Because the combination of the Krapukhin patent and Kannan and Fournier does not disclose, teach, or suggest all of the elements claimed in independent claim 76, it is respectfully submitted that this claim is allowable. Furthermore, claims 77-82 depend either directly or indirectly from claim 76 such that these claims are also allowable over the prior art of record, alone or in combination.

Relative to new independent claim 83, the Applicant specifically traverses the Examiner's rejection of claim 30 under § 102(b) as being anticipated by the Krapukhin patent. As originally described above, claim 83 is a combination of original claims 1 and 30 with the focus being on the extension of the wave coils in an endless path through the at least one crest and the at least one trough and between the first and second ends of the filter element. In addition to the fact that the Krapukhin patent does not disclose, teach, or suggest the filtration aperture as discussed above, the Krapukhin patent *also does not* disclose, teach, or suggest the wave coils extending continuously in an endless path through the at least crest and the at least one trough as claimed in new claim 83 (and in original dependent claim 30).

Referring to Page 3 of the Examiner's Office Action, the general reference by the Examiner contending that "Krapukhin discloses the wave coils as extending continuously in an endless path..." is insufficient. By this general reference, the Applicant assumes that the Examiner relies on Figure 2 of the Krapukhin patent. However, as alluded to above, Figure 2 discloses two separate elements and not one element that extends "continuously in an endless path".

Because the Krapukhin patent does not disclose, teach, or suggest all of the elements claimed in independent claim 83, it is respectfully submitted that this claim is allowable. Furthermore, claim 84 depends from claim 83 such that this claim is also allowable over the prior art of record.

At this point in the examination of the subject application, Applicant respectfully notes that the Examiner has previously withdrawn claims 25, 28, 29, 32, 33, 37-41, 47-56, and 63 from the subject application as these claims were directed to non-elected

species of the invention. However, as described above, independent claims 1 and 56 are allowable and rejoinder of the withdrawn claims is respectfully solicited as claim 1 is generic as to withdrawn claims 25, 28, 29, 32, 33, 37-41, and 47-56 and claim 56 is generic as to withdrawn claim 63.

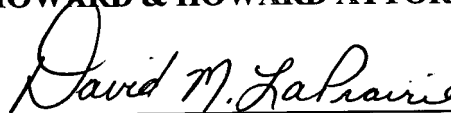
It is respectfully submitted that the application is now presented in condition for allowance, which allowance is respectfully solicited. Further, favorable reconsideration of the outstanding office action is hereby requested.

The Commissioner is authorized to charge our deposit account no. 08-2789 for any additional fees or credit the account for any overpayment.

Respectfully submitted,

HOWARD & HOWARD ATTORNEYS, P.C.

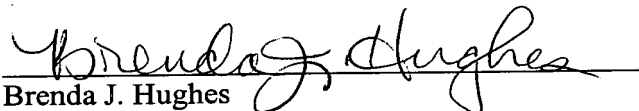
Dated: July 11, 2003



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CERTIFICATE OF MAILING

I hereby certify that the attached **Amendment** is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to **Mailstop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450**, on July 11, 2003.


Brenda J. Hughes

VERSION OF SPECIFICATION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPEC:

On page 1, please amend the Title as follows:

FILTER ASSEMBLY[,] AND FILTER ELEMENT[, AND METHOD OF
UTILIZING THE SAME]

On the page of the Abstract of the Disclosure, please amend the Title as follows:

FILTER ASSEMBLY[,] AND FILTER ELEMENT[, AND METHOD OF
UTILIZING THE SAME]

VERSION OF CLAIMS WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please replace claim 17 with the following amended claim:

17. (Amended) A filter assembly [as set forth in claim 9] for filtering a fluid, said assembly comprising:

a plurality of wave coils arranged axially to define a filter element having first and second ends and an inner cavity;

a support engaging one of said first and second ends for supporting said wave coils and for diverting the fluid inside or outside said inner cavity of said filter element;

each of said wave coils including at least one crest and at least one trough with said at least one crest of one wave coil engaging said at least one trough of an adjacent wave coil to define at least one filtration aperture between each crest and each trough of adjacent wave coils for filtering the fluid diverted by said support;

a base plate engaging one of said first and second ends of said filter element; and

a flange member engaging the other of said first and second ends relative to said base plate, said flange member being adjustably engaged relative to said base plate for modifying a length L, extending between said first and second ends of said filter element, to reduce and expand said at least one filtration aperture;

wherein said flange member comprises a flange collar and a yoke extending from said collar toward said base plate thereby defining a shoulder portion of said flange member between said flange collar and said yoke, said shoulder [potion] portion of said flange member supporting the other of said first and second ends of said filter element relative to said base plate.